

### REMARKS

Claims 1 to 15, 17, and 19 to 21 are pending in the present application.

#### Anticipation Rejection Based on the Strauss Patent

Claims 1 to 5, 8 to 10, 13 to 15, 17 and 19 have been rejected under 35 U.S.C. § 102(b) as being anticipated by United States Patent No. 5,559,659 to Strauss (hereinafter, "the Strauss patent").

The Strauss patent is directed to an integrated circuit ESD protection technique including a protection circuit. A feedback resistor is connected in parallel with the active circuitry, which includes an even number of inverters. If an odd number of inverters are used, at least one inverter is positioned between the non-inverting portion of the drive circuitry connected to the feedback resistor and the protective transistor.

Claim 1 is directed to an ESD protection circuit including (1) an odd number of inverters, each of the an odd number of inverters having an input and an output; (2) a timing element for triggering the an odd number of inverters, the timing element having an output node, the output node connected with the input of at least one of the an odd number of inverters; (3) a clamping device joined with the output of at least one of the an odd number of inverters; and (4) a feedback device for preventing the clamping device from turning off until completion of a high current portion of an ESD event. The feedback device is in communication with the clamping device and the output node of the timing element.

Applicants respectfully submit that the Strauss patent fails to disclose or suggest an ESD protection circuit according to claim 1. For example, the Strauss patent fails to disclose or suggest an odd number of inverters with a feedback device in communication with a clamping device and an output node of a timing element, as required by claim 1. Specifically, the Strauss patent sets forth that "while two inverters are shown in the illustrative embodiment of FIG. 2,

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Law Offices of  
Downs Rachlin Martin PLLC  
199 Main Street  
P.O. Box 190  
Burlington, VT 05402-0190  
(802) 863-2375

any even number of inverters will provide positive feedback through a resistor.” (col. 3, lines 7 to 9). The Strauss patent discloses only an even number of inverters connected to a feedback resistor. Even when the Strauss patent discusses the use of an odd number of inverters, it states that the arrangement is such that an even number of inverters are connected to the feedback resistor (col. 3, lines 12 to 25). Thus, when an odd number of inverters are used according to the Strauss patent, at least one inverter will be positioned between the non-inverting portion, which is connected to the feedback resistor and the protective transistor. Accordingly, claim 1 is patentably distinguishable over the Strauss patent.

Claims 2 to 5 depend from claim 1. Thus, claims 2 to 5 are patentably distinguishable over the Strauss patent for at least the reasons discussed above with respect to claim 1.

Independent claim 8 is directed to an ESD protection circuit including (1) an odd number of inverters, each of the an odd number of inverters having an input and an output; (2) an RC network having an output node, the output node connected with the input of at least one of the an odd number of inverters; (3) a clamping device joined with the output of at least one of the an odd number of inverters; and (4) a feedback device in communication with the clamping device and the output node of the RC network.

Applicants respectfully submit that the Strauss patent fails to disclose or suggest an ESD protection circuit according to claim 8. For example, the Strauss patent fails to disclose or suggest an odd number of inverters with a feedback device in communication with a clamping device and an output node of an RC network, as required by claim 8. As discussed above with respect to claim 1, the Strauss patent requires that a feedback resistor be connected to the output of a last inverter of an even number of inverters and an input of a first inverter of an even number of inverters. Accordingly, claim 8 is patentably distinguishable over the Strauss patent.

Claims 9 and 10 depend from claim 8. Thus, claims 9 and 10 are patentably distinguishable over the Strauss patent for at least the reasons discussed above with respect to claim 8.

Independent claim 13 is directed to an ESD protection circuit including (1) an odd number of inverters, each of the an odd number of inverters having an input and an output; (2) a clamping device joined with the output of at least one of the an odd number of inverters; (3) means for timing the triggering of each of the an odd number of inverters, the means for timing having an output node connected with the input of at least one of the an odd number of inverters; and (4) means for extending the time the clamping device is on. The means for extending is in communication with the clamping device and the output node of the means for timing. The clamping device remains on until a high current portion of an ESD event terminates.

Applicants respectfully submit that the Strauss patent fails to disclose or suggest an ESD circuit according to claim 13. For example, the Strauss patent fails to disclose or suggest an odd number of inverters with a means for extending in communication with a clamping device and an output node of a means for timing, as required by claim 13. As discussed above, the Strauss patent requires that a feedback resistor be connected to the output of a last inverter of an even number of inverters and an input of a first inverter of an even number of inverters. Thus, the Strauss patent does not disclose or suggest an odd number of inverters with a means for extending in communication with a clamping device and the output node of a means for timing. Accordingly, claim 13 is patentably distinguishable over the Strauss patent.

Claims 14, 15, 17, and 19 depend from claim 13. Thus, claims 14, 15, 17, and 19 are patentably distinguishable over the Strauss patent for at least the reasons discussed above with respect to claim 13.

**Obviousness Rejection Based on the Strauss Patent**

Claims 7, 12, and 21 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the Strauss patent.

Claim 7 depends from claim 1 and adds the element that the odd number of inverters of claim 1 comprise at least three inverters.

Applicants respectfully submit that the Strauss patent fails to disclose or suggest an ESD protection circuit according to claim 7. As discussed above with respect to claim 1, the Strauss patent fails to disclose or suggest an odd number of inverters with a feedback device in communication with a clamping device and an output node of a timing element, as required by claim 1 and, thus, claim 7. Accordingly, claim 7 is also patentably distinguishable over the Strauss patent.

Claim 12 depends from claim 8 and adds the element that the odd number of inverters of claim 8 comprise at least three inverters.

Applicants respectfully submit that the Strauss patent fails to disclose or suggest an ESD protection circuit according to claim 12. As discussed above with respect to claim 8, the Strauss patent fails to disclose or suggest an odd number of inverters with a feedback device in communication with a clamping device and an output node of an RC network, as required by claim 8 and, thus, claim 12. Accordingly, claim 12 is also patentably distinguishable over the Strauss patent.

Claim 21 depends from claim 13 and adds the element that the odd number of inverters of claim 13 comprise at least three inverters.

Applicants respectfully submit that the Strauss patent fails to disclose or suggest an ESD protection circuit according to claim 21. As discussed above with respect to claim 13, the Strauss patent fails to disclose or suggest an odd number of inverters with a means for extending in communication with a clamping device and an output node of a means for timing, as required by claim 13 and, thus, claim 21. Accordingly, claim 21 is also patentably distinguishable over the Strauss patent.

**Obviousness Rejection Based on the Strauss Patent in view of the Wu et al. Patent**

Claims 6, 11, and 20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the Strauss patent in view of U.S. Patent No. 6,552,886 to Wu et al. (hereinafter, "the Wu et al. patent").

The Wu et al. patent is directed to an ESD protection circuit coupled between power and ground. The ESD protection circuit includes a voltage divider that generates a sense voltage that drives a first inverter. A string of inverters is driven by the first inverter, with a final inverter driving the gate of a clamp transistor. An extending n-channel transistor drives the input of the final inverter low when the clamping transistor is on, extending the discharge time. A hysteresis p-channel transistor drives the output of the first inverter high, delaying turn-on of the clamp transistor.

Claim 6 depends from claim 1 and adds the element that each of the odd number of inverters includes a PFET and an NFET.

Applicants respectfully submit that the Strauss patent fails to disclose or suggest an ESD protection circuit according to claim 6. As discussed above with respect to claim 1, the Strauss patent fails to disclose or suggest an odd number of inverters with a feedback device in communication with a clamping device and an output node of a timing element, as required by claim 1 and, thus, claim 6. The Wu et al. patent fails to cure the deficiencies of the Strauss patent. For example, the Wu et al. patent does not disclose or suggest a feedback device in

communication with a clamping device and an output node of a timing element, let alone an ESD protection circuit with such a feedback device and an odd number of inverters. Accordingly, claim 6 is also patentably distinguishable over the cited references, alone or in combination.

Claim 11 depends from claim 8 and adds the element that each of the odd number of inverters includes a PFET and an NFET.

Applicants respectfully submit that the Strauss patent fails to disclose or suggest an ESD protection circuit according to claim 11. As discussed above with respect to claim 8, the Strauss patent fails to disclose or suggest an odd number of inverters with a feedback device in communication with a clamping device and an output node of an RC network, as required by claim 8 and, thus, claim 11. The Wu et al. patent fails to cure the deficiencies of the Strauss patent. For example, the Wu et al. patent does not disclose or suggest a feedback device in communication with a clamping device and an output node of an RC network, let alone an ESD protection circuit with such a feedback device and an odd number of inverters. Accordingly, claim 11 is also patentably distinguishable over the cited references, alone or in combination.

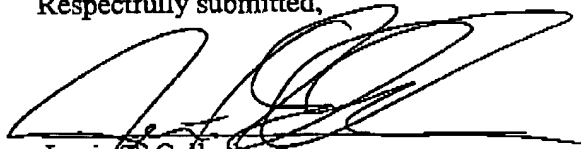
Claim 20 depends from claim 13 and adds the element that each of the odd number of inverters includes a PFET and an NFET.

Applicants respectfully submit that the Strauss patent fails to disclose or suggest an ESD protection circuit according to claim 20. As discussed above with respect to claim 13, the Strauss patent fails to disclose or suggest an odd number of inverters with a means for extending in communication with a clamping device and an output node of a means for timing, as required by claim 13 and, thus, claim 20. The Wu et al. patent fails to cure the deficiencies of the Strauss patent. For example, the Wu et al. patent does not disclose or suggest a means for extending in communication with a clamping device and an output node of a means for timing, let alone an ESD protection circuit with such a means for extending and an odd number of inverters.

Accordingly, claim 20 is also patentably distinguishable over the cited references, alone or in combination.

Accordingly, Applicants submit that all claims are in a condition for allowance and respectfully solicit the prompt issuance of a Notice of Allowance. If any issues remain, the Examiner is encouraged to call the undersigned attorney at the number listed below.

Respectfully submitted,



Jamie T. Gallagher

Registration No.: 51,714

DOWNNS RACHLIN MARTIN PLLC

Attorneys for Applicants

Tel: (802) 846-8362

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